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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/955,432 | 09/19/2001 | Tatsuya Maruo | 0171-0784P-SP | 9441 |

2292 7590 12/19/2003

BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

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| EXAMINER |
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CHANEY, CAROL DIANE

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| ART UNIT | PAPER NUMBER |
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1745

DATE MAILED: 12/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/955,432

Applicant(s)

MARUO ET AL.

Examiner

Carol Chaney

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 13-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,7. 6) ☐ Other: _____

Election/Restrictions

Claims 13-17 (Group III) are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 9, filed 25 September 2003.

Applicants' comments filed 25 September 2003 are persuasive, and the inventions of Group I, claims 1-6 and Group II, claims 7-12 have been rejoined. As noted by the applicants, a typographical error was made in the office action mailed 26 August 2003, and the corrected listing of inventions should have been:

Group I. Claims 1-6, drawn to an electrolyte composition, classified in class 252, subclass 62.2.

Group II. Claims 7-12, drawn to a battery, classified in class 429, subclass 300.

Group III. Claims 13-17, drawn to a capacitor, classified in class 361, subclass 525.

Specification

Claim 12 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. Claim 12 requires the limitations of one of claims 7-10 *and* one of claims 5 or 6. See MPEP § 608.01(n). Accordingly, the claim 12 not been further treated on the merits.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-1 are rejected under 35 U.S.C. 103(a) as being unpatentable over Venugopal et al., US Patent 5,558,959.

Venugopal et al. disclose polyurethane gel electrolyte systems. The electrolyte system includes an organic support structure and a liquid electrolyte absorbed by the organic support structure. The organic support structure may be a segmented block copolymer. An example on an inventive block copolymer is a polyurethane thermoplastic which is a copolymer of a short-chain diisocyanate and a polyester diol. (Column 3, lines 8-44.) An example of polyester diol usable in the invention is polycaprolactone. (Column 4, lines 18-29.)

In a preferred embodiment, Venugopal et al. disclose forming a polyurethane film by compression molding, and subsequently soaking the film in a 1 M solution of lithium tetrafluoroborate dissolved in propylene carbonate. This process clearly swells the polyurethane film. (See column 8, lines 15-26.)

The disclosure of Venugopal et al. differs from applicants' invention in that Venugopal et al. do not recite a specific amount of swelling which occurs after 24 hours. Venugopal et al. describe the swelling occurring after soaking for 48 hours instead. Venugopal et al. describe an inventive polyurethane film soaked for 48 hours to contain

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about 63% liquid electrolyte. (Column 8, lines 20-22.) Therefore, 37% of the soaked film is polyurethane, and is the original weight of the film. The swelling ratio after 48 hours is $100/37 \times 100$ or about 270%.

Venugopal et al. note that with increasing wt% of the liquid electrolyte material [in the gel electrolyte] the conductivity similarly increases. Thus, the swelling ratio of polyurethane film is a result effective variable, and it would be within the skill of the ordinary artisan to adjust the amount of swelling of the polyurethane film which occurs in 24 hours in order to adjust conductivity of the film,

With regards to claim 6, an increase in electrolyte conductivity with temperature reflects the activation energy for ionic conductivity. Since the activation energy is an inherent property of a material, and the materials described in applicants' invention and the prior art of Venugopal et al. are similar, the activation energy for ionic conductivity, and hence the ratio of conductivities at -10°C and 25°C will inherently be similar.

Conclusion

The prior art made of record by the applicants in the European Search Report, filed 07 July 2003 has not been relied upon because none of the documents cited recite the specifics of the electrolyte "swelling ratio" as claimed by the applicants.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol Chaney whose telephone number is (703) 305-3777. The examiner can normally be reached on Mon - Fri 8:00am-4:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 703-308-2383. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Carol Chaney
Primary Examiner
Art Unit 1745

CC